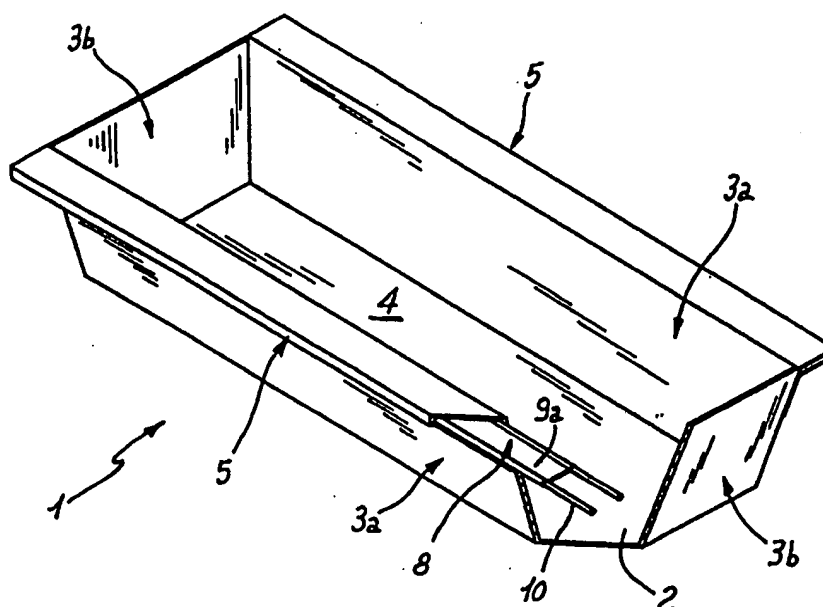


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(54) Title: TRAY-SHAPED PAPER CONTAINERS, IN PARTICULAR FOR FOODSTUFFS TO BE BAKED

**(57) Abstract**

A tray-shaped paper container is provided, in particular for foodstuffs to be baked, which comprises a flat bottom, side walls having upper borders of substantially flat conformation and substantially flat stiffening means applied to the region of said upper borders.

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TRAY-SHAPED PAPER CONTAINERS, IN PARTICULAR FOR
FOODSTUFFS TO BE BAKED

D e s c r i p t i o n

5

The present invention relates to a tray-shaped paper container, in particular for foodstuffs to be baked, of the type comprising a flat bottom substantially in the form of a rectangle and side walls adapted to confine a
10 holding space.

It is known that for baked foodstuffs such as confectionery products for example, tray-shaped containers or baking tins obtained from paper material of
15 an appropriate type are generally utilized for cooking mixtures and for the subsequent preservation of the finished products.

In particular, greatly widespread are containers that are
20 each formed of a flat bottom substantially shaped as a rectangle, and of side walls that altogether define a slightly flaring holding space.

It is known that above all the opposite side walls of
25 greater length, during cooking of the mixture housed in the container, have a tendency to yield above all at the central portion thereof, thereby giving rise to widening and swelling of the finished product, which is unacceptable both from an aesthetic point of view and an
30 industrial point of view.

It is to note that, for industrial production of baked foodstuffs, containers that are not subjected to shape variations during the dough rising are required. Actually
35 the rising effect is kept under control only if the container walls are sufficiently rigid, otherwise the

foodstuffs would take different shapes, the amounts of the introduced dough being equal, giving rise to great difficulties also in the subsequent packaging step. Practically, due to this fact, an industrial production
5 of baked foodstuffs using containers of this type would be made impracticable.

In order to avoid the above mentioned drawback, in accordance with the known art the longer walls of the
10 containers are provided to be made more rigid by upper tube-like borders, i.e. borders shaped in the form of curls obtained by folding down the flaps projecting from said longer walls. These flaps are comprised of a first
15 portion for formation of the true tubular border and a consecutive end portion that is caused to adhere by sticking to the outer face of the respective side wall.

The known art briefly described above has some limits and drawbacks.

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In fact, first of all, containers provided with tube-like borders do not enable an appropriate stacking from the point of view of the volume they occupy, because since these tube-like borders are of a rather important
25 diameter, when they are superposed upon each other they prevent the bottoms and side walls of the stacked containers to get into mutual contact or in any case to be arranged at a very reduced mutual distance.

30 Practically, the great volume occupied by the containers of known type when superposed upon each other, gives rise to important transportation, packaging and storage costs, that can involve high percentages of the overall sale prices.

35

In addition, workings needing a certain period of time

are required for the formation of tube-like borders, which will bring about corresponding slowing down in the production rates.

- 5 Under this situation, it is a general aim of the present invention to devise a tray-shaped paper container capable of substantially obviating the above mentioned drawbacks.

10 Within the scope of this general aim it is an important object of the invention to device a tray-shaped paper container capable of reducing the transportation, packaging and storage costs of these types of containers to an important extent. A further object of the invention is to devise a tray-shaped container of strong structure
15 and incapable of deformation even if dampened, in particular during the cooking steps of the mixture housed therein.

The aims specified are substantially achieved by a tray-
20 shaped paper container which is characterized in that at least one pair of said oppositely-disposed side walls has upper borders of substantially flat conformation and substantially extending parallelly to the flat bottom, externally of said holding space, and in that it
25 comprises substantially flat stiffening means applied to said upper borders.

Description of a preferred embodiment of a tray-shaped paper container in accordance with the invention is given
30 hereinafter, by way of non-limiting example, with the aid of the accompanying drawings, in which:

- Fig. 1 is a partly sectioned perspective view of a container in accordance with the invention;
- Fig. 2 is a cross-sectional view to an enlarged scale
35 of a border region of the container shown in Fig. 1; and
- Fig. 3 is a perspective view of an alternative

embodiment of the container shown in Fig. 1.

With reference to the drawings, the tray-shaped paper container in accordance with the invention is generally
5 identified by reference numeral 1.

It comprises a flat bottom 2 of substantially rectangular form, a pair of long side walls 3a and a pair of short side walls 3b generally adapted to form a slightly
10 flaring holding space 4.

In an original manner, at least the pair of long side walls 3a, that are more subjected to yielding during cooking of the food held in the container, has upper
15 borders 5 of substantially flat conformation and extending parallelly to the bottom 2 externally of the holding space 4.

Each of the upper borders 5 is formed of two consecutive
20 flaps, a first flap 6a and a second flap 6b, emerging from a respective first side wall 3a and folded down so as to define a gap 7 between them, said gap extending over the whole length of the upper border itself.

25 Extending from the second flap 6b is an auxiliary end portion 6c folded back against the outer face 3c of the corresponding side wall 3a and made integral with the latter by an adhesive substance. The auxiliary end portion 6c therefore locks the upper border 5 to an
30 operating position and, in order to perform this function, it may have even a limited extension towards bottom 2, thereby helping in reducing the paper amount required for each container.

35 Advantageously housed in gaps 7 of the upper borders 5 is substantially flat stiffening means 8 the bulkiness of

which corresponds to the volume of said gaps.

More specifically, the stiffening means 8 is defined, for each upper border 5, by a stiffening strip of a longitudinal extension substantially corresponding to the extension of border 5. Said stiffening strip comprises a paper support 9 of tubular conformation, in turn comprising a flattened centre portion 9a consisting of two opposite stretches mutually adhering to each other and two longitudinal loops 9b defining the longitudinal contours of the strip itself.

The longitudinal loops 9b incorporate a pair of malleable iron wires 10 and are shaped during the manufacturing step of said wires.

Practically, the stiffening strip 8 is enclosed in a delimited space, defined by gap 7, which prevents any displacement thereof. This circumstance enables the same stiffening strips 8 to exert the maximum strength action in the plane in which they lie and to keep the upper borders 5 constantly parallel to bottom 2, that is horizontal in the normal use position of the container. Thus, a strong resistance to deformation is caused in a plane parallel to the bottom, i.e. in the stiffening direction required by the long side walls in order to avoid any swelling.

Alternatively, the stiffening means 8 may consist of a stiffening strip exclusively formed of a support of flattened thin paperboard 11.

The invention achieves important advantages.

First of all, containers in accordance with the invention, stacked up for transportation and storage,

take up very reduced volumes relative to similar containers of known type. By way of example, a given number of said known containers superposed upon each other is deemed to take up a space which is about three
5 times the space taken up by containers in accordance with the invention having the same capacity. Actually, the original substantially-flat upper borders, in addition to exerting a strong stiffening action on the long side walls with which they are advantageously
10 associated, also have reduced thickness so that bottoms of the stacked containers are arranged almost completely close to each other.

Practically, the limited volumes of the containers in
15 accordance with the invention when arranged into a stack enable their transportation, packaging and storage costs to be greatly reduced.

It should be also recognized that, due to the presence of
20 upper borders of flat conformation, the production process is facilitated and consequently the manufacturing rates of the whole containers can be increased.

Finally, it is to point out that the limited use of metal
25 material for the stiffening means of the upper wall borders, practically enables the containers of the invention to be considered as made of a single material of paper type, thereby facilitating the recycling procedures of said material as disposable waste material.

C L A I M S

1. A tray-shaped paper container, in particular for foodstuffs to be baked, of the type comprising a flat
5 bottom (2) substantially in the form of a rectangle and side walls (3a, 3b) adapted to confine a holding space, characterized in that at least one pair of said mutually-opposite side walls (3a) has upper borders of substantially flat conformation (5) and substantially
10 extending parallelly to the flat bottom (3) externally of said holding space, and in that it comprises substantially flat stiffening means (8) applied close to said upper borders.
- 15 2. A container as claimed in claim 1, characterized in that said substantially flat stiffening means (8) comprises a pair of stiffening strips each of them having an extension substantially corresponding to the extension of a respective one of said flat borders (5).
- 20 3. A container as claimed in claim 2, characterized in that each of said stiffening strips comprises a paper support (9) and a pair of incorporated iron wires (10) at the longitudinal contours of said paper support (9).
- 25 4. A container as claimed in claim 3, characterized in that said paper support (9) is of tubular conformation and comprises a flattened centre portion (9a) consisting of two mutually-adhering opposite stretches and two
30 longitudinal loops (9b) housing said iron wires (10) and shaped so as to conform to the latter.
5. A container as claimed in claim 1, characterized in that said flat borders (5) each comprise two consecutive
35 flaps (6a, 6b) emerging from a respective one of said side walls (3a) and folded down so as to define a gap (7)

between them which is adapted to house said flat stiffening means (8).

6. A container as claimed in claim 5, characterized in
5 that each of said flat borders (5) comprises an auxiliary end portion (6c) folded back against the outer face (3c) of the respective side wall (3a) and adhering thereto.

7. A container as claimed in claim 2, characterized in
10 that each of said stiffening strips comprises a support made of a flattened thin paperboard material (11).

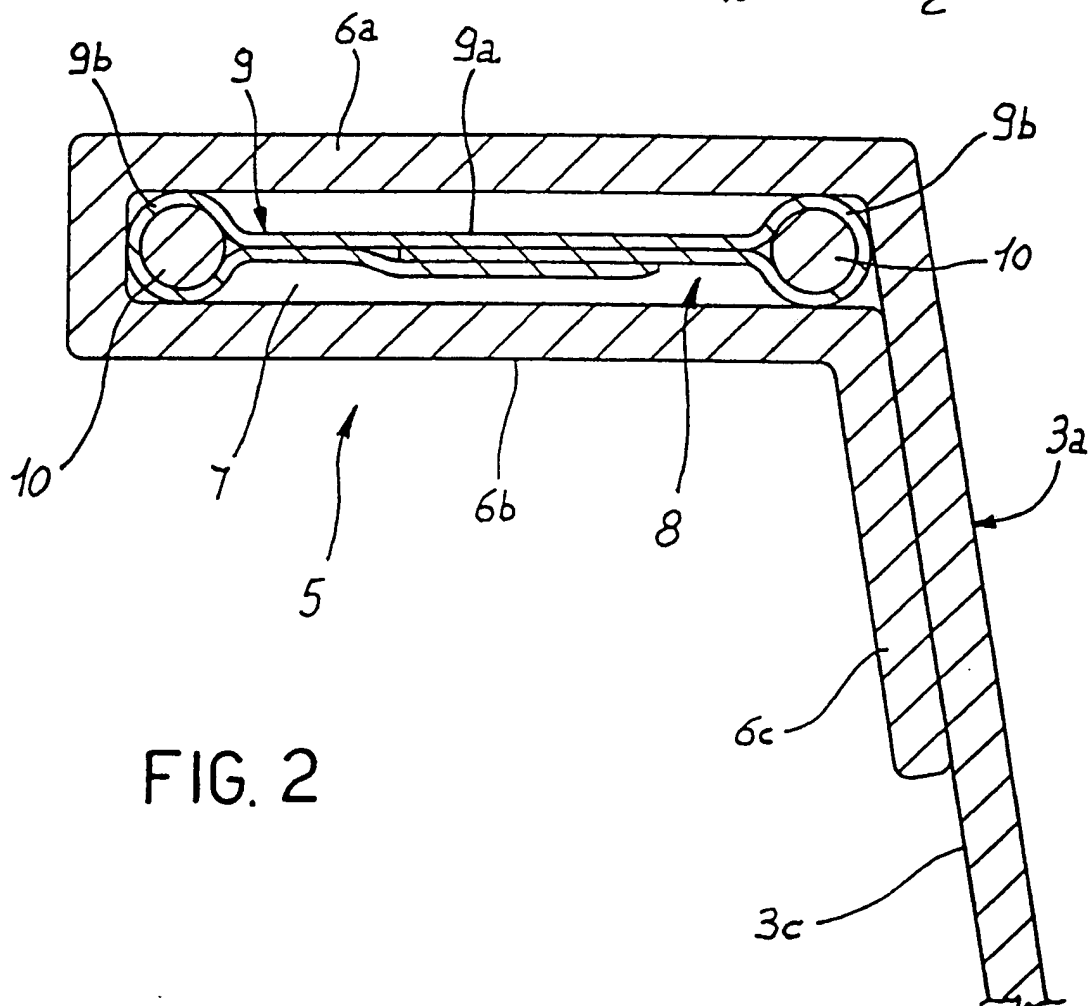
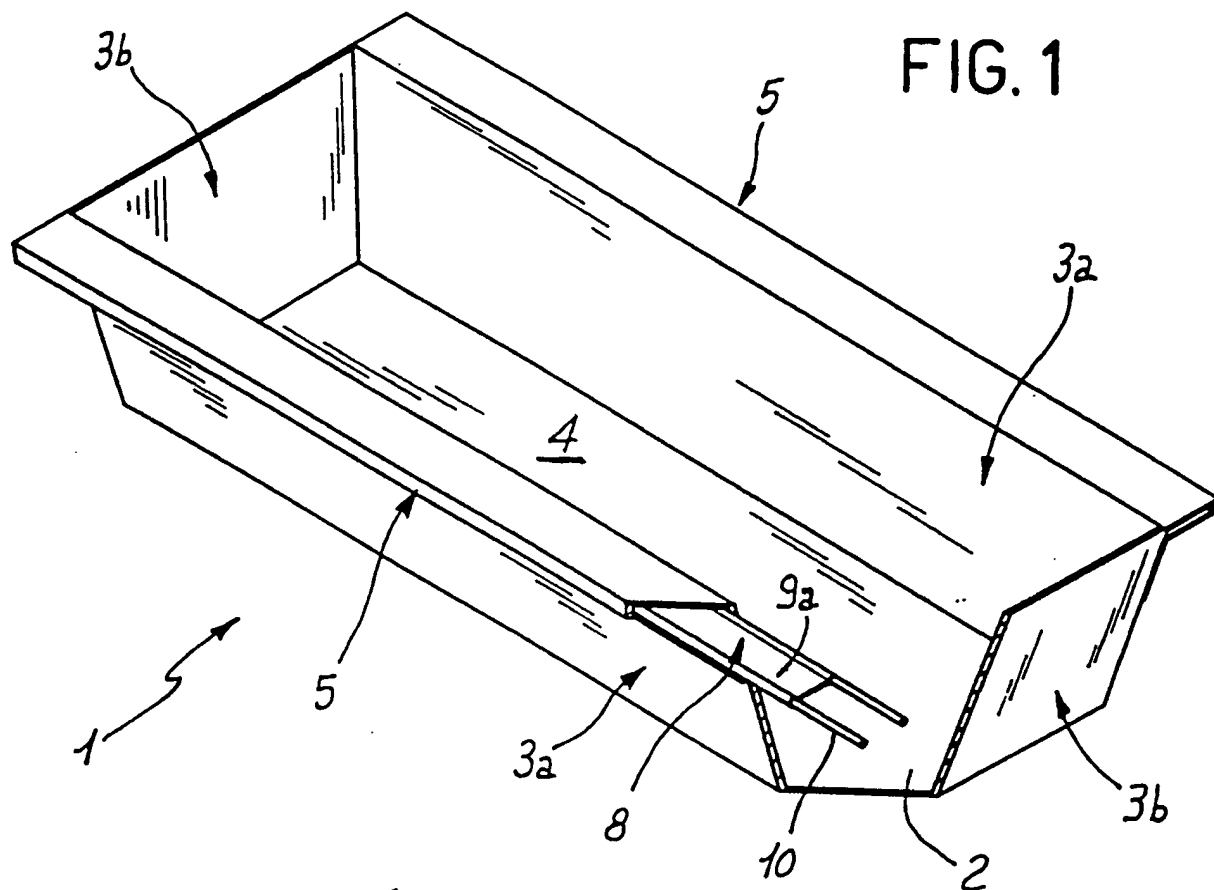
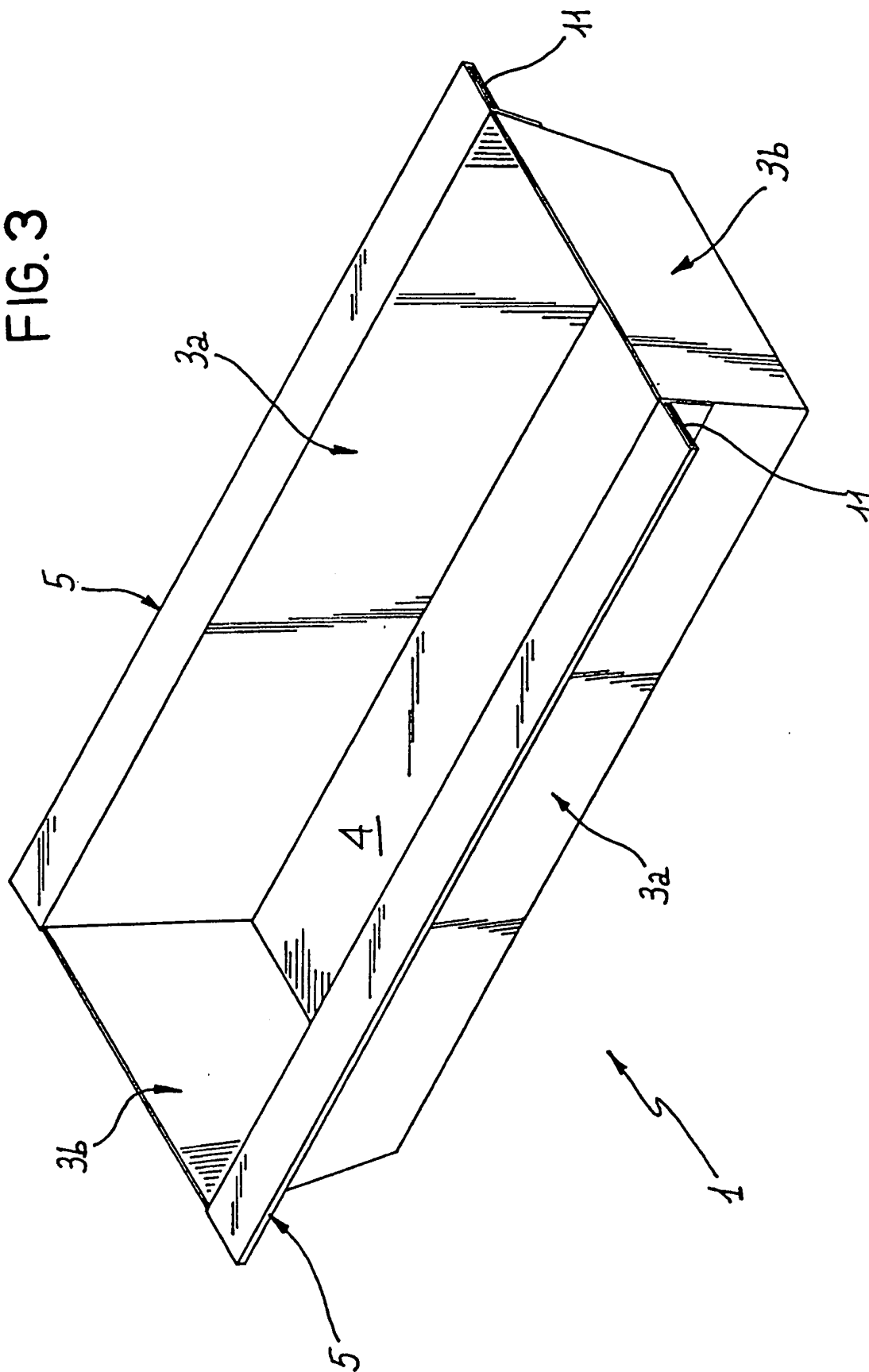


FIG. 3



A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B65D5/44

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2 034 469 A (HOWARD) 17 March 1936 see page 1, column 1, line 40 - column 2, line 53; figures 1-6 ---	1,2,5
A	AU 498 016 B (ANDERSSON) 1 February 1979 see page 4, line 13 - page 5, line 20; figures 1-13 ---	1,2
A	US 3 082 906 A (REED) 26 March 1963 see column 2, line 11 - line 60; figures 1,2 ---	1-3
A	GB 1 007 046 A (NOMAD BOX COMPANY) 13 October 1965 see page 1, line 83 - page 2, line 27; figures 1,2 ---	1-3
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Date of the actual completion of the international search

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2 876 498 A (NASON) 10 March 1959 see column 2, line 16 - column 3, line 20; figures 1-4 ---	1-3
A	US 4 380 301 A (EISMAN) 19 April 1983 see column 2, line 28 - column 3, line 40; figures 1-6 -----	1,2

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